

ABSTRACT OF THE DISCLOSURE

The present invention relates to a new essential downstream component of the Wnt/Wingless (Wnt/Wg) signaling pathway and therapeutic and diagnostic applications based thereon. The invention relates to nucleotide sequences of the *Drosophila melanogaster legless (lgs)* gene, of its encoded proteins, as well as derivatives (e.g., fragments) and analogues thereof. The invention further includes vertebrate and invertebrate homologues of the Lgs protein, comprising proteins that contain a contiguous stretch of amino acids with similarity to the *Drosophila lgs* gene. The invention further relates to the function of the *Drosophila* and the human Lgs proteins. Methods for producing the Lgs proteins, derivatives and analogs, e.g., by recombinant means and antibodies to Lgs are provided by the present invention. In addition, the invention also relates to the therapeutic and diagnostic methods and compositions based on Lgs proteins and nucleic acids or fragments thereof.